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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/716,651	11/20/2000	Samir N. Hulyalkar	SDC-100	8383

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EXAMINER
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PHU, PHUONG M

ART UNIT	PAPER NUMBER
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2631

DATE MAILED: 04/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/716,651

Applicant(s)

HULYALKAR ET AL.

Examiner

Phuong Phu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 29 March 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 7-32 is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### DETAILED ACTION

1. This Office Action is responsive to the Amendment filed on 3/29/04.

#### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Willming (5,923,711), prior art of record, in view of Sklar, "Digital Communications Fundamentals and Applications", newly cited.

As per claim 1, see figures 2-7 and col. 4, line 38 to col. 10, line 33, Willming discloses a method comprising:

step (see figure 5) for dividing a set of code values ( $Z_2Z_1Z_0$ ) into a plurality of subsets (a, b, c, d), each subset including a plurality of values (Relative Amplitude); and

step (40, 82) (see figure 4) for decoding and quantizing each sample value of successive sample values in a single symbol interval (see col. 6, line 66 to col. 7, line 1), to assign the sample value to one of the subsets (see col. 9, lines 21-28, and col. 10, lines 34-44).

Willming does not disclose whether each sample value is decoded based on a current sample value and a previous sample value of successive sample values.

Sklar discloses that for during Viterbi decoding process, principally, each sample value (Z) is decoded based on a current sample value and a previous sample value of successive

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sample values (Received Sequence) in selection of survival paths (see section 6.3.4, pages 333-337)

On the other hand, Willming discloses that step (40, 82) uses a Viterbi decoder (82) for decoding samples values, however, he does not disclose, in detail, how the Viterbi decoder (82) is implemented. Therefore, as an application, it would have been obvious for one skilled in the art, when carrying out Willming method, to implement the Viterbi decoder (82) in such a way that the Viterbi decoder would decode sample value of successive sample values based on a current sample value and a previous sample value of successive sample values, as taught by Sklar.

As per claims 2 and 3, Willming in view of Sklar discloses that the sample values are trellis encoded (see Willming, figure 3); and he further discloses step of calculating path metrics for the current sample responsive to the path metrics calculated for the previously sample values, and using the calculated metrics to calculate a most likely path metric of the current sample value (see Sklar, figures 6.10-6.12).

As per claim 4, Willming in view of Sklar discloses that the trellis code can define a state-transition diagram in which a change from the previous sample value to the current sample value represents a transition in the state diagram and every state in the state transition diagram is associated with a path metric, and he further discloses step of selecting a most likely transition in the state transition diagram from any state corresponding to the previous sample value to a specific state of the current sample value (see Sklar, figures 6.10-6.12).

As per claims 5 and 6, in Willming in view of Sklar, the trellis encoded sample values corresponds to a convolution code (see Willming, figure 3).

*Allowable Subject Matter*

4. Claims 7-32 are allowed.

*Response to Arguments*

5. Applicant's arguments filed on 3/29/04 have been fully considered. Claims 7-32 are now allowable, and the rejection, under 35 USC 112, to claims 1-6 is now withdrawn. However, claims 1-6 are deemed not patentable in view of the new ground of rejection as set forth above in this Office Action.

*Conclusion*

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phuong Phu whose telephone number is 703-308-0158. The examiner can normally be reached on M-F (8:30-6:00) First Monday Off.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on 703-306-3034. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*Phuong Phu*

Phuong Phu  
04/15/04

Phuong Phu  
Primary Examiner  
Art Unit 2631

**PHOUNG PHU  
PRIMARY EXAMINER**